



# EIC8596-2

UPDATED 07/25/2007

## 8.50-9.60 GHz 2-Watt Internally-Matched Power FET

### FEATURES

- 8.50-9.60GHz Bandwidth
- Input/Output Impedance Matched to 50 Ohms
- +33.5 dBm Output Power at 1dB Compression
- 8.0 dB Power Gain at 1dB Compression
- 30% Power Added Efficiency
- -46 dBc IM3 at PO = 22.5 dBm SCL
- 100% Tested for DC, RF, and R<sub>TH</sub>

### ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25°C)

SYMBOL	PARAMETERS/TEST CONDITIONS <sup>1</sup>	MIN	TYP	MAX	UNITS
<b>P<sub>1dB</sub></b>	Output Power at 1dB Compression V <sub>DS</sub> = 10 V, I <sub>DSQ</sub> ≈ 550mA f = 8.50-9.60GHz	32.5	33.5		dBm
<b>G<sub>1dB</sub></b>	Gain at 1dB Compression V <sub>DS</sub> = 10 V, I <sub>DSQ</sub> ≈ 550mA f = 8.50-9.60GHz	7.0	8.0		dB
<b>ΔG</b>	Gain Flatness V <sub>DS</sub> = 10 V, I <sub>DSQ</sub> ≈ 550mA f = 8.50-9.60GHz		±0.6	+ 0.8	dB
<b>PAE</b>	Power Added Efficiency at 1dB Compression V <sub>DS</sub> = 10 V, I <sub>DSQ</sub> ≈ 550mA f = 8.50-9.60GHz		30		%
<b>I<sub>d1dB</sub></b>	Drain Current at 1dB Compression f = 8.50-9.60GHz		600	700	mA
<b>IM3</b>	Output 3rd Order Intermodulation Distortion Δf = 10 MHz 2-Tone Test; P <sub>out</sub> = 22.5 dBm S.C.L. <sup>2</sup> V <sub>DS</sub> = 10 V, I <sub>DSQ</sub> ≈ 65% IDSS f = 9.60GHz	-43	-46		dBc
<b>I<sub>DSS</sub></b>	Saturated Drain Current V <sub>DS</sub> = 3 V, V <sub>GS</sub> = 0 V		1000	1250	mA
<b>V<sub>P</sub></b>	Pinch-off Voltage V <sub>DS</sub> = 3 V, I <sub>DS</sub> = 10 mA		-2.5	-4.0	V
<b>R<sub>TH</sub></b>	Thermal Resistance <sup>3</sup>		11	12	°C/W

Notes:

1. Tested with 100 Ohm gate resistor.
2. S.C.L. = Single Carrier Level.
3. Overall R<sub>th</sub> depends on case mounting.

### MAXIMUM RATING AT 25 °C<sup>1,2</sup>

SYMBOLS	PARAMETERS	ABSOLUTE <sup>1</sup>	CONTINUOUS <sup>2</sup>
<b>V<sub>ds</sub></b>	Drain-Source Voltage	15	10V
<b>V<sub>gs</sub></b>	Gate-Source Voltage	-5	-4V
<b>I<sub>gsf</sub></b>	Forward Gate Current	21.6mA	7.2mA
<b>I<sub>gsr</sub></b>	Reverse Gate Current	-3.6mA	-1.2mA
<b>P<sub>in</sub></b>	Input Power	32.5dBm	@ 3dB Compression
<b>T<sub>ch</sub></b>	Channel Temperature	175 °C	175 °C
<b>T<sub>stg</sub></b>	Storage Temperature	-65 to +175 °C	-65 to +175 °C
<b>P<sub>t</sub></b>	Total Power Dissipation	12.5W	12.5W

- Note: 1. Exceeding any of the above ratings may result in permanent damage.  
2. Exceeding any of the above ratings may reduce MTTF below design goals.

Specifications are subject to change without notice.

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# EIC8596-2

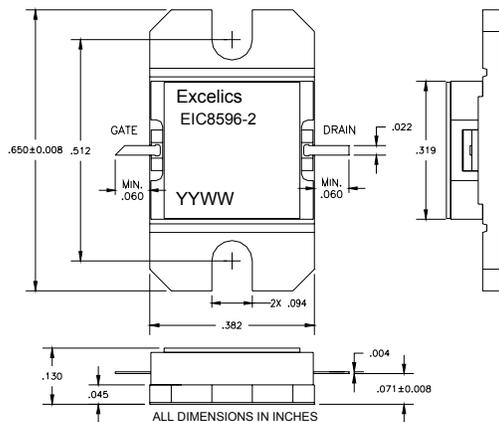
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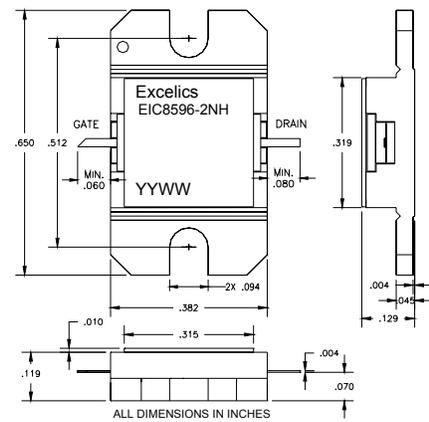
### PACKAGES OUTLINE

Dimensions in inches, Tolerance  $\pm .005$  unless otherwise specified

EIC8596-2 (Hermetic)



EIC8596-2NH (Non-Hermetic)



Caution! ESD sensitive device.



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### ORDERING INFORMATION

Part Number	Packages	Grade <sup>1</sup>	f <sub>Test</sub> (GHz)	P <sub>1dB</sub> (min)	IM <sub>3</sub> (min) <sup>2</sup>
EIC8596-2	Hermetic	Industrial	8.50-9.60GHz	32.5	-43
EIC8596-2NH	Non-Hermetic	Industrial	8.50-9.60GHz	32.5	-43

- Notes: 1. Contact factory for military and hi-rel grades.  
2. Exact test conditions are specified in "Electrical Characteristics" table.

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